

REMARKS

Examiner Toniae M. Thomas is thanked for a thorough search of the subject of the patent application. Claims 1, 9, and 13 have been amended to point out the significant differences between the patent cited by the examiner and the current application and thereby overcome the Examiner's rejection. Phrase, "to form sacrificial implanted silicon dioxide layer" has been added to the claims 1, 9, and 13. The symbol "^oA" has been changed to "Å" in claims 2, 10, and 14 as per Examiners suggestion. The parameter "-020" on the X-axis of Figure 4 has been amended to "-.020" as pointed out by the Examiner.

Significant differences between the application and the patent cited by the Examiner are pointed out and clarified as below:

Some of the process steps in the cited patent (US 6,468,849) are similar as in the pre-amended application, as pointed by the Examiner: formation of isolation pad oxide and nitride; formation of shallow trench isolation (STI) patterns and filling them with an oxide; etching to remove filled oxide in regions between STI regions and CMP; removal of pad nitride. Figure 6E in the cited patent shows the ion implantation without the use of any sacrificial oxide layer. Several, as many as four implants (VT adjust, sub-surface punch-through, channel stop, and a MEV well implant) are used. No mention is made on the use of a sacrificial oxide layer and its implication on VT variability.

In the current application, only one low energy shallow implant is used through pad oxide

to form the sacrificial implanted oxide layer. This shallow implantation, which introduces the dopants mainly in the pad oxide with only the tail in silicon, stabilizes the pad oxide:silicon substrate interface dopant concentration as prior to well-implantation, as shown in Figure 5 and Table I in the application. The second well-implant is also done, now through the sacrificial implant layer formed during the first implant. With only one pad-oxide deposition step, three critical process steps are accomplished in the invention: formation of a sacrificial implant oxide layer, first low energy implant to stabilize VT variability, and second well-implant.

We have reviewed the related prior art references made of record and note that none of these suggest the method presented in the claimed invention for improving the VT stability of the device with the use of a sacrificial implant layer formed from pad oxide.

Claims 1, 2, 9, 10, 13, and 14 and Figure 4 have been amended to overcome the Examiner's rejections and objections, and are now believed to be in condition for allowance and allowance is so requested.

It is requested that should there be any problem with this Amendment, please call the undersigned Attorney at (845) 452-5863.

Respectfully submitted,



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Amendments to the Drawings

The attached sheet of drawings includes changes to Fig. 4 to overcome the Examiner's rejections and objections.

Attachment: 1) Replacement Sheet